UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,616	05/19/2005	Shahin Farahani	51579/A599	7514

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EXAMINER
JANAKIRAMAN, NITHYA

ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). .
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _19 May 2005_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-15_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-15_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _19 May 2005_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)   4)☐ Interview Summary (PTO-413)
                                                                Paper No(s)/Mail Date. _____ .
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08)   5)☐ Notice of Informal Patent Application
   Paper No(s)/Mail Date _5/19/05_.   6)☐ Other: _____.

DETAILED ACTION

This action is in response to the application filed on May 19, 2005. Claims 1-15 are

presented for examination.

Specification

1.   Paragraphs [006], [0010], and [0011] are objected to because of the following

informalities: the terms 'continuous' and 'modeling' are misspelled. Appropriate

correction is required.

Claim Objections

2.   Claims 11-14 are objected to because of the following informalities: the term

'modeling' is misspelled. Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3.   Claims 1-15 are rejected under 35 U.S.C. 101 as being non-statutory.

4.   Regarding independent claim 1, claiming an output signal is not sufficient to be

statutory material as there is no tangible, useful, or concrete result. All depending

claims are rejected as well.

5.   Regarding independent claim 11, there is no useful, tangible, and concrete result.

Converting signals is not sufficient to be statutory material. In addition, signals do not

constitute statutory material. All depending claims are rejected as well.

6.   Regarding independent claim 14, the system is software *per se*, and there is no

tangible, useful, or concrete result. All depending claims are rejected as well.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form

the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7.   Claims 1, 3-7, 11, 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by

"High Speed Signal Processing with Tapped Dispersive SAW based Delay Lines", by

Brandl (hereinafter Brandl).

8.   Regarding independent claim 1, Brandl teaches:

A method of simulating radio frequency signal processing circuitry (see part III,

"theoretical model for the chirp transceiver"), comprising:

forming a compressed vector based equivalent of a signal (see figure 5, "Chirp

compressor");

performing processing on the compressed vector based equivalent to simulate radio frequency circuitry operation, the processing forming a processed compressed vector based equivalent of the signal (see page 173, "the decision unit generates the estimated data signal");

and forming an output signal using the processed compressed vector based equivalent of the signal (see figure 5, "Decision Unit").

9.   Regarding claim 2, Brandl teaches:

The method of claim 1 wherein information in the compressed vector based equivalent of the signal is limited to information of the signal in frequency bands of interest (see Introduction, "...scientific and medical bands, at 2.45 and 5.8 GHz...").

10.   Regarding claim 3, Brandl teaches:

The method of claim 1 wherein the processing simulates non-linear operations (see e.g. equation 3.1).

11.   Regarding claim 4, Brandl teaches:

The method of claim 1 wherein the processing is compressed vector based processing (see Figure 5, "Chirp Compressor").

12.   Regarding claim 5, Brandl teaches:

The method of claim 1 wherein the processing includes linear time invariant processing (see Part II, "passive, linear, time invariant") and non-linear time invariant processing (see e.g. equation 3.1).

13.   Regarding claim 6, Brandl teaches:

The method of claim 1 wherein the processing is frequency domain processing (see Part

II, "...frequency domain are coupled by the dispersion coefficient...").

14.   Regarding claim 7, Brandl teaches:

The method of claim 1 wherein the processing is time domain processing (see e.g.

equation 3.1).

15.   Regarding claim 8, Brandl teaches:

The method of claim 1 wherein the processing simulates RF receiver front-end

processing (see Introduction, "radio transmission utilizing chirp signals", Part II, "six

parallel paths with power detectors and RF switches").

16.   Regarding claim 9, Brandl teaches:

The method of claim 2 wherein the signal is centered about a carrier frequency, and the

frequency bands of interest include the carrier frequency and harmonics of the carrier

frequency (see Part III, equation 3.5, "...the received signal at the matched filter is the

superposition of the transmitted chirp signal and the jammer...").

17.   Regarding claim 10, Brandl teaches:

The method of claim 9 wherein the signal is bandwidth limited to a bandwidth B, and

the frequency bands of interest are limited to the bandwidth B (see Part III, "...a B is the

chirp bandwidth...").

18.   Regarding claim 11, Brandl teaches:

A method of modeling circuitry, comprising:

converting first signals to compressed equivalent signals (see figure 5, "Chirp

Compressor");

processing the compressed equivalent signals to form further compressed equivalent

signals (see Figure 5, "LP"); and

converting the further compressed equivalent signals to second signals (see "Decision

Unit").

19.   Regarding claim 12, Brandl teaches:

The method of modeling circuitry of claim 11 wherein the first signals are signals about

a carrier frequency and harmonics and sub-harmonics of the carrier frequency (see

figures 3 and 4, "frequency bands or sub bands distorted by the radio channel...") and

the compressed equivalent signals are formed by restricting information in the

compressed equivalent signals to signal components about the carrier frequency and

harmonics and sub-harmonics of the carrier frequency (see figure 5, "Chirp

Compressor", g(t)).

20.   Regarding claim 13, Brandl teaches:

The method of modeling circuitry of claim 12 wherein the first signals are bandwidth

limited and the compressed equivalent signals are bandwidth limited (see Part II,

"...signals within its bandwidth are heavily suppressed...").

21.   Regarding claim 14, Brandl teaches:

A system for performing RF signal processing modeling, the system comprising:

signal generator blocks forming compressed vector based equivalent signal

representations (see figure 5, "PPM Coder", "Chirp Compressor");

RF signal processing blocks processing compressed vector based equivalent signal

representations (see figure 5, "Chirp Compressor"); and

conversion blocks converting compressed vector based equivalent signals to RF signal

representations (see figure 5, equation 3.1).

22.   Regarding claim 15, Brandl teaches:

The system of claim 14 wherein the RF signal processing blocks are formed using sub-

blocks (see figure 5) comprising linear time invariant blocks (see Part II, "passive,

linear, time invariant") and non-linear time invariant blocks (see e.g. equation 3.1).

Additional References

23.   Additional references addressing the inventive concept are:

- US PGPub 2006/0241921: A method is taught for increasing the steady-state

  verification speed of analog and mixed signal design through increased simulation

  speed, model abstraction by probing an existing component model or actual device

  and formal comparison of distinct component models.

- US Patent 7013257: A communication system emulator digitally emulates a plurality

  of signal impairments created by the transmitter and receiver components and

  communication medium in a typical communication system, for use in evaluating

  and refining modem design.

- US PGPub 2003/0125912: Correcting a signal offset may include observing a finite duration signal y_n that comprises a representation of a mixture of a desired signal and an undesired signal.
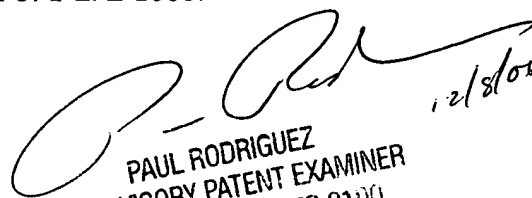
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nithya Janakiraman whose telephone number is 571-270-1003. The examiner can normally be reached on Monday-Thursday, 8:00am-5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on (571)272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NJ

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